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Monte-Carlo study of Λ ($\bar{\Lambda}$) polarization at MPD

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The polarization of Λ hyperons is self-analyzed in their weak decays and represents a sensitive tool to explore the dynamics of hadronic reactions and heavy-ion collisions. It was extensively studied in hadronic reactions, where it is directed along the normal to the scattering plane. In heavy-ion collisions this observable is expected to decrease due to randomization of the scattering on different nucleons. At the same time, there exist another observable, global hyperon polarization, which is directed along the normal to the reaction plane. It is emerging due to the presence of initial angular momentum in non-central heavy-ion collisions and is growing with decreasing energy. The goal of future MPD and BM@N experiments at NICA is to investigate these observables in heavy-ion collisions in the energy range of several GeV per nucleon. Here we present the study of Λ ($\bar{\Lambda}$) polarization within the framework of the MPD experiment, performed via Monte-Carlo simulation in order to analyze the sensitivity of the detector to these variables.

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